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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,102

09/19/2006

Shin Nakamura

W1878.0239

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12/10/2008

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EXAMINER

TURNER, KATHERINE ANN

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

12/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/599,102	Applicant(s) NAKAMURA ET AL.	
	Examiner Katherine Turner	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed September 11, 2008 has been entered. Claims 1 and 7-8 are pending. Claim 1 is amended. Claims 2-6 and 9-13 are cancelled.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on June 12, 2008.

Claim Objections

3. The objection to claim 13 is withdrawn, because the claim 13 has been cancelled.

Drawings

4. The objection to the drawings is withdrawn in light of amendment.
5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "1390" and "1393" have both been used to designate single cell structure and evaporations inhibiting layer (abstract; page 11, lines 3-4). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted

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after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

6. The claim rejections under 35 U.S.C. 102(b) as anticipated by Ren et al. (US 2004/0209136) on claims 1 and 7 are withdrawn, because the independent claim 1 has been amended.

7. The claim rejections under 35 U.S.C. 102(b) as anticipated by Ren et al. (US 2004/0209136) on claims 3-4 and 10-11 are withdrawn, because the claims 3-4 and 10-11 have been cancelled.

Claim Rejections - 35 USC § 103

8. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Ren et al. (US 2004/0209136) and Peled et al. (WO 03/009410) on claims 2 and 9 are withdrawn, because claims 2 and 9 have been cancelled.

9. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Ren et al. (US 2004/0209136) and Plowman et al. (US 4,722,773) on claims 5-6 and 12-13 are withdrawn, because claims 5-6 and 12-13 have been cancelled.

10. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Ren et al. (US 2004/0209136) and Wilson (US 6,808,838) on claim 8 is withdrawn, because the independent claim 1 has been amended. This amendment necessitates a new ground of rejection under 35 U.S.C. 103(a).

11. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ren et al. (US 2004/0209136) in view of Kinkelaar et al. (US 2004/0001991).

As to claim 1, Ren et al. discloses a solid electrolyte fuel cell (having a solid membrane electrolyte) ([0024]) comprising:

- layers of a fuel cell (Applicant's laminate) compressed to adhesion by bolts (122) (figures 1-4 and 8; paragraph 45, lines 17-22) of
- a methanol delivery film (209, 460, 860) (Applicant's limited fuel-permeating part) (figures 2-4 and 8; paragraph 48, lines 24-27; paragraph 31),
- an anode current collector (224, 424, 823) (figures 2-4 and 8; paragraphs 49, 67, and 79),
- a catalyzed membrane electrolyte (204, 404, 804) with an electrocatalyst coating on an anode face (206) (Applicant's anode

- catalyst layer), a membrane electrolyte (Applicant's solid electrolyte membrane), and an electrocatalyst coating on a cathode face (208) (Applicant's cathode catalyst layer) (figures 2-4 and 8; paragraph 48),
- a cathode current collector (226, 426, 836) (figures 2-4 and 8; paragraphs 49, 67, and 79),
 - and a cathode filter (290, 480, 880) (Applicant's evaporation inhibiting layer) which limits cathode water evaporation rate ([0085], lines 13-18; paragraph 59)
 - in sequence (figures 2-4 and 8),
 - wherein the cathode filter (290, 480, 880) (Applicant's evaporation inhibiting layer) which covers the surface of the cathode current collector (226, 426, 836) (figures 2-4 and 8; paragraphs 85-86).

Ren et al. discloses the cathode filter (Applicant's evaporation inhibiting layer) as an extra cathode backing layer helping to lower the rate of water evaporation and maintain sufficient water flow back to the anode (paragraphs 58, 82, and 85), but is silent as to the cathode filter (Applicant's evaporation inhibiting layer) being made of woven or unwoven fabric containing fibrous cellulose.

Kinkelaar et al. teaches cathode backing layers/capillarity structure made of woven or nonwoven fibers of cellulose (paragraph 16) that improve liquid recovery, maintain effective gas diffusion, retain and provide controllably delivery of liquids for transport to the anode (paragraphs 11-12 and 14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Kinkelaar et al.'s

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cathode back layers/capillarity structure made of woven or nonwoven fibers of cellulose as Ren et al.'s cathode filter (Applicant's evaporation inhibiting layer), because Kinkelaar et al. teaches that it improves liquid recovery, maintains effective gas diffusion, retains and provides controllably delivery of liquids for transport to the anode (paragraphs 11-12 and 14).

Regarding claims 7 and 10-11, Ren et al. discloses a fuel reservoir (450, 850) (Applicant's container) reserving a neat methanol (Applicant's liquid fuel) supplied to an anode side is placed adjacently to the methanol delivery film (209, 460, 860) (Applicant's limited fuel-permeating part) (figures 2-4 and 8; [0048], lines 22-27; [0068], lines 1-4).

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ren et al. (US 2004/0209136) and Kinkelaar et al. (US 2004/0001991) as applied to claims 1 and 7 above, and further in view of Wilson (US 6,808,838).

Ren et al. discloses the fuel reservoir (450, 850) (Applicant's container) reserving a neat methanol (Applicant's liquid fuel) supplied to an anode side is placed adjacently to the methanol delivery film (209, 460, 860) (Applicant's limited fuel-permeating part) (figures 2-4 and 8; paragraph 48, lines 22-27; paragraph 68, lines 1-4). Carbon dioxide (Applicant's a gas generated by a cell reaction) being vented between the anode diffusion layer (210) and the methanol delivery film (209, 460, 860) (Applicant's limited fuel-permeating part) by figure 2's arrow (234) (Applicant's gas discharging part which is not adjacent to the fuel-absorbing member for discharging), the carbon dioxide

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(Applicant's a gas generated by a cell reaction) travels next to the methanol delivery film (209, 460, 860) (Applicant's limited fuel-permeating part). The methanol delivery film (209, 460, 860) (Applicant's limited fuel-permeating part) resists carbon dioxide from flowing back into the fuel chamber, so some of the carbon dioxide flows into (Applicant's in the limited fuel-permeating part) the methanol delivery film (209, 460, 860) (Applicant's limited fuel-permeating part), but is kept from going into the fuel chamber, therefore directing the carbon dioxide back out according to figure 2's arrow (234) (figures 2-4 and 8; paragraph 49, lines 15-18; paragraph 66). A fuel reservoir (450, 850) placed adjacently to the methanol delivery film (209, 460, 860) (Applicant's limited fuel-permeating part) (figures 2-4 and 8; paragraph 48, lines 22-27; paragraph 68, lines 1-4). Ren et al. desires to have the liquid methanol in the fuel reservoir (450, 850) to undergo a phase change to methanol vapor prior to introduction to anode (figures 2-4 and 8; paragraph 68).

Ren et al. is silent as to a fuel-absorbing member being placed adjacently to a part of the methanol delivery film (209, 460, 860) (Applicant's limited fuel-permeating part) that absorbs the liquid fuel.

Wilson teaches a superabsorbent material (36) (Applicant's fuel-absorbing member) being placed within a fuel reservoir cavity (34) (figure 2B; column 6, lines 12-40). Wilson teaches that the superabsorbent material (36) (Applicant's fuel-absorbing member) supplies phase changed methanol from neat liquid to vapor form, which limits methanol cross-over (column 4, lines 57-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Wilson's

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superabsorbent material (36) (Applicant's fuel-absorbing member) to Ren's fuel reservoir (450, 850), because Wilson teaches that the superabsorbent material (36) (Applicant's fuel-absorbing member) supplies phase changed methanol, from neat liquid to vapor form, which limits methanol cross-over (column 4, lines 57-62), and desired by Ren et al. (figures 2-4 and 8; [0068]).

Response to Arguments

13. Applicant's arguments with respect to claims 1 and 7-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence/Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine Turner whose telephone number is (571)270-5314. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571)272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. T./

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/Dah-Wei D. Yuan/

Supervisory Patent Examiner, Art Unit 1795